THE
EUGENICS REVIEW

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"Eugenics is the study of agencies under social control that may improve or impair the racial qualities of future generations either physically or mentally."

NOTES OF THE QUARTER

THE behaviour of the birth rate in England and Wales had not, up to the end of September 1941, resulted in anything like the spectacular reductions that took place during the first two years of the 1914 war. This at first sight may seem to be a matter for surprise, especially when we remember that births to the end of September 1941 include conceptions occurring during the fateful period from June to December 1940; months which saw the fall of France, the Battle of Britain and the onset of ferocious night bombing.

Using as a basis the quarterly averages of live births registered during the years 1935-9, we find that effective conceptions (i.e. conceptions resulting in live births) dropped by 5·5 per cent during the first three months of the war. As public anxiety diminished during the period of semi-normality (the unappreciated quiet that preceded the storm), so did the rate of decline fall off to 3·9 per cent and 1·8 per cent. When the storm broke the decline in effective conceptions rose to 8·6 per cent (June-September 1940). The following three months of day and night bombing saw this figure fall back to 6·6 per cent. These percentages are relatively small; in comparison with the quarterly percentage declines during 1914 and 1915 they are only half as large. Nevertheless, the birth rates for the two quarters ended September 1941 are the lowest ever recorded for England and Wales and it should be borne in mind that the scope for reduction to-day is much less as the birth rate is roughly 40 per cent lower than at the beginning of the 1914 war. Moreover, at that time the rate was already declining rapidly and the war merely speeded up an existing trend, whereas in 1939 the rate was being kept fairly stable by the results of an inflated number of marriages delayed by the depression until the period of greater employment in the years just prior to the outbreak of war. But for the masking effects of prosperity following acute depression the decline might have been greater. Another element in a comparison of the two wars is possibly to be found in the fact that up to the present the amount of marital separation is much smaller than it was twenty-five years ago when large bodies of men were sent abroad. This, however, is only conjecture as we have little evidence on which to make a comparison.

Surveying the effects of the first two years of war on fertility we may conclude that the decline has not been as large as might have been expected; we should put the number of unborn casualties at approximately 41,000. This applies in particular to conceptions during the last months of 1940 and it may be a matter for congratulation—or it may not—that the British people, faced with almost continuous night and day bombing and by the very real threat of the invasion of their island home, managed to start on their careers something like 300,000 sons and daughters.

We would hazard the suggestion that from

the eugenic viewpoint the 41,000 were the ones we could least afford to lose. As we have remarked before, social pessimism is a highly selective phenomenon and, in the environment of total war, the sensitive, imaginative and far-sighted individuals are the first victims. In this connection it is an interesting fact that the seasonal differences in the birth rate have greatly diminished. Does this mean that the war has resulted in fewer *planned* births? One hundred years ago out of every 1,000 annual births 250 would take place in each of the four quarters. In recent years we notice the influence of birth control as March to June emerged as the most popular quarter and September to December the least popular. For the year ended September 1941 we find little difference between the four preceding quarters. Perhaps this is only a temporary phenomenon, but it raises once again the problem of differential fertility and it should be watched with interest. Another interesting development is that Scotland recorded for the third quarter of 1941 the highest birth rate for nine years. The rise was, however, considerably influenced by a significant increase in illegitimate births and (like the rates for England and Wales) was no doubt affected by the heavy increase in the number of marriages at the beginning of the war.

From these demographic developments little comfort can be drawn by German propagandists. Indeed, the hitherto boastful note is, if we may take a recent copy of the *Schwarze Korps* as an example, deteriorating into something akin to a plaintive wail for more babies. According to this paper, "The German people are destined to organize and lead the European Raum. How are we to solve this new task with our present numbers?" After putting this theoretical question the writer went on: "The task which results from the clash in the East will only confront us after victory has been achieved, and this task will not be fulfilled unless the German people also win the battle of births."

Despite the inducements and the exhortations to replenish (legitimately and illegitimately) their own and other people's *Lebensraum* and the example set by the *Führer* who managed to collect 12,620 godchildren in the space of three years, the Germans are failing to respond. Their own authorities have estimated that as a result of the war 150,000 fewer children were born in 1940 and now comes the news that births from January to March 1941 declined by 24·5 per cent (another 116,000 unborn casualties) in comparison with the corresponding quarter of 1940. Such a large decrease can hardly be interpreted by the Nazis as an encouraging feature. Indeed, we are inclined to regard it as a vote of No Confidence.

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In the April 1941 issue of the REVIEW we discussed the findings of the medical boards in their examinations of men for the forces and referred to the first results of medical inspections in the United States. The first observations in that country seemed to indicate a considerable improvement in the rejection rate and forecasts of the proportion physically unfit were generally optimistic. It is perhaps only a coincidence, but it is nevertheless a curious fact that, in this country, the early results of the examination of conscripts under the Military Training Bill were similarly optimistic. Since our April Notes were written roughly 2,000,000 young Americans have been medically examined and 1,000,000—nearly 50 per cent—have been rejected as unfit for service in the United States Army on account of physical, mental or educational defects. This staggering picture of mental and physical deficiences—a picture not conveyed by American films; not, at least, so far as physique is concerned—may be compared with a rejection rate of 30 per cent during 1917-18. The present rate of 50 per cent may also be compared with the only figures so far published in this country which indicated a rate of under 10 per cent up to the outbreak of war. This latter figure has, from time to time, been questioned in these columns and it has been suggested that it masked a considerable relaxation in standards. Whatever the reason for such a satisfactory rate of acceptances in this country, which we can only hope has not burdened the Army with an unduly heavy

proportion of sick and mentally dull individuals, a comparison with American experience suggests that either their standards are far higher than ours or that the general level of mental and physical health in this country is much ahead of that of the American people. The second alternative is difficult to accept as it is not borne out by mortality and morbidity statistics. Indeed, the standardized death rate for all ages is lower in the U.S.A. than in England and Wales (when we exclude deaths by violence) despite the great range of climatic differences in the New World. Moreover, Stocks has recently shown in a valuable paper* that during the decade 1931-40 New York forged ahead of London in respect of reductions achieved in many health indices. For infantile deaths and mortality from tuberculosis and diphtheria the gap between London and New York has widened, whilst the death-rate in London from measles is five times greater, and from whooping cough two-and-a-half times greater than in New York. We can only conclude, therefore, that the standards laid down by the American authorities for the examination of recruits must be considerably above those obtaining in this country. The Americans insist, however, that their standards have not changed since 1917-18 when 30 per cent were rejected, although they admit the possibility that these standards are being more rigidly enforced to-day. The belief that there is a more stringent attention to standards is strengthened by an analysis of some examination returns up to March 1941, by Perrott,† published by permission of the Surgeon-General, United States Public Health Service. This investigator writes: "The most striking difference between the results of 1917-18 and to-day is the present high percentage of rejections because of defective teeth, which are over four times as high as in the World War draft. It should not be concluded that this necessarily indicates an increase in the prevalence of dental disease since 1918. It may indicate that young men to-day have had less dental care during childhood and adolescence than those of 1918, due perhaps to the effect of the depression. Furthermore, while army standards have not changed since the last war, it is possible that they are being more rigidly enforced to-day. Other factors may play a part, such as the fact that deferments because of dependents or essential occupation tend to concentrate young men of low economic status who have had inadequate dental care in the group who are certified for physical examination.

Rejections for respiratory disease (largely tuberculosis) are only a little lower than in the World War (1·7 per cent as compared with 2 per cent). Since mortality from tuberculosis has been cut in half in that time, it would appear that a better case-finding job is being done in the present examinations.

Rejections for venereal disease constitute 1·6 per cent of men in the present examinations as compared with 0·5 per cent in the last draft. This higher percentage need not indicate an increase in the prevalence of venereal disease since 1918 but is probably due to more rigid standards to-day, which exclude men with venereal disease, and to the use of better diagnostic methods." Perrott notes that his analysis relates to men aged 21 to 25, "the period when physical health should be at its best," and also points out that mortality in this age group has declined by 30 per cent since the last World War. In summarizing his material the author remarks: "In spite of the higher percentage of rejections reported to-day than in 1917-18, it cannot be said that the physical status of young men has deteriorated since the World War. Neither can it be said that the health of young men has improved. Differences in physical examination standards, in technique of examining physicians, and other factors, make comparison difficult until the data can be analysed in more detail. Rejections for defective teeth are obviously higher than in 1918; otherwise, the important causes of rejection to-day are the same as those in the World War draft. Recent preliminary results

* Stocks, P. "Health Indices for Greater London and New York, 1931-40." *British Medical Journal*, July 19th, 1941, No. 4,202.

† Perrott, George St. J. "Physical Status of Young Men, 1918 and 1941." *Milbank Memorial Fund Quarterly*, Vol. **19**, No. 4.

of physical examinations in National Youth Administration projects confirm the results of Selective Service. Nearly 30 per cent of N.Y.A. male youths aged 21-24 were judged by examining physicians to have physical defects which handicapped them to a greater or less extent for work." " It is to be hoped," concluded Perrott, " that the implications of the present figures will be apparent to others than statisticians and will promote the planning of future health services for children and adolescents to the end that future generations of young men may have the maximum possible health and vigour."

They have not escaped the attention of President Roosevelt who, on October 10th, 1941, spent most of his Press Conference discussing the problem of 1,000,000 rejected young men. He had the courage, despite the use to which the figures were being put by German propagandists, to declare that they were " an indictment of America." The revelation of such conditions amongst such a high proportion of young men on the threshold of marriage and parenthood must be of particular concern to all eugenists, not only in the U.S.A. but also in this country. For when we have taken all factors into account we believe that there cannot be much difference in the level of public health in the two democracies. The trouble has been, as President Roosevelt remarked in quoting the late William Welch, " We know how to do a lot of things which we do not do or do on a wretchedly small scale."

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The *Eugenics Society* has made many contributions, and some not without a degree of success, in the fight for improved population statistics. The *Society* was foremost in advocating those measures which, after a stern battle with the powers of obscurantism, were embodied in the Population (Statistics) Act, and placed on the statute book in July 1938. Owing to the outbreak of war the fruits of this Act have not yet been published apart from certain Scottish figures relating to the last six months of 1938. We do not see any great difficulty in publishing the figures—which the Act was introduced to provide—in an unanalysed form for students of population to investigate. We shall, as Professor Gunnar Myrdal emphasizes in his new book,* soon be faced with a population crisis and the earlier we are provided with adequate statistics on current fertility patterns and other factors the sooner shall we be able to formulate a eugenic approach to the problem of man's continuing refusal to reproduce.

The Annual Report of the Registrar-General for Scotland for 1938 provides some interesting figures resulting from the new Act. Amongst these we note a table on first births according to the age of the mother and the interval since marriage. The births in all numbered 13,901, and of these 7,357 occurred within one year of marriage and 3,483 in the second year of marriage. At the other extreme there were 190 cases in which more than ten years had elapsed between marriage and the birth of the first child, in fifty-eight of which more than fifteen years had elapsed and in six cases more than twenty years. We observe that in 3,995 cases, or 28·7 per cent of all first births, the birth took place within seven months of marriage, in the eighth and the ninth month in 809 cases, or 5·8 per cent, and in the period from the tenth to the twelfth month (inclusive) in 2,553 cases, or 18·4 per cent. Thereafter the numbers diminish for each succeeding three-monthly period in the second year of marriage and for each year following. The average interval between marriage and the birth of the first child was approximately one year and eight months. As might be expected, there is rather a preponderance of younger mothers in those cases in which the duration of marriage was less than one year, the average age for such cases being 24·6 years, while for first births in the second year of marriage the average maternal age was 27·1, and for those in the third year of marriage it was 28·7. In the case of births occurring before the end of the seventh month after marriage the average age of the mother was 23·5 years.

The proportion of births occurring within seven months of marriage declines progres-

* *Population, A Problem for Democracy.* New York, 1941. (To be reviewed.)

sively with increasing age of the mother. Thus of infants born to mothers aged under 20, 70·7 per cent occur within seven months of marriage, at age 20-24 the percentage is 39·8, at 25-29 it is 17·0, at 30-34 it is 10·1, and at 35-39 it is 9·2. That this high percentage of conceptions before marriage is not peculiar to Scotland is borne out by the latest Statistical Register for New South Wales (1939).* This shows that 18·4 per cent of all first births occurred within seven months of marriage and a further 9·2 per cent in the eighth month. Of first births occurring to mothers under the age of 20, 52·1 per cent took place within seven months of marriage. There is nothing in these figures for Scotland and New South Wales (which, incidentally, indicate the extent to which *unwanted* births are taking place) to support the late Raymond Pearl's data on the frequency of coitus and frequency of fertilization.† Pearl collected data on the sexual life of 199 Baltimore couples and suggested that 301 copulations were required to produce one live birth. This startling estimate of infertility appears to be fantastically in error by the statistics we have quoted from Scotland and New South Wales.

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Although many enquirers have endeavoured to collect evidence as to the part played by induced abortion in reducing fertility in England and Wales no decisive results have emerged owing to the tenuous nature of the statistical material. The Report of the Inter-Departmental Committee on Abortion (1939) estimated that about 40 per cent of the abortions in England and Wales may be due to illegal interference, and Glass inclines to the view that " It seems not at all improbable that there are each year about 100,000 illegal abortions."‡ The root cause of such a high incidence of induced abortion is largely a matter of speculation and it is therefore welcome to note that an investigation of 800 cases treated at the Sabbatsberg Hospital, Stockholm, from 1935 to 1937 throws some light on the practice.

The investigation, reported by Dr. G. Inghe and Dr. G. A. Jonsson,* showed abortion to be much commoner among unmarried than married women, as might be expected. Among unmarried women the rate reaches a maximum between the ages of 25 and 30 ; in married women it rises with age. Figures collected from public hospitals showed that pregnancy in unmarried women resulted in birth of the child at term and eventual marriage of the parents in a third of the cases, illegitimate births in a third and abortion in a third. Many cases of illegal abortion, however, do not reach hospital, and the practice is estimated to be more common than pregnancy going to term among unmarried women. About a third of the 800 cases admitted to having attempted to procure abortion, usually medicinally. Most of the mothers were working women earning comparatively small wages—waitresses, kitchen hands, hairdressers and shop assistants. Of the married women, those with several children and coming from overcrowded houses were more numerous than those with one or two. Most of them had used contraceptives, but seldom selected the most reliable or used them regularly. Many of those who knew of reliable contraceptives had not used them because of distaste, or because they grudged the inconvenience. About half the 800 women were married, or living as married, and most of the rest had regular sexual intercourse ; intercourse was occasional in only 7 per cent. Most of the unmarried women had sought abortion on economic grounds. Poverty and unemployment had delayed marriage for some, and others doubted whether they would be able to support their children. Nearly half feared the social criticism which birth of an illegitimate child would provoke, and two-thirds dreaded the anger of their parents. Only a third of the whole series had any idea that induction of abortion was attended with risk. Among the married women, 75 per cent gave economic reasons for their action, 10 per cent

* Published by the Government of New South Wales, 1941.

† *The Natural History of Population*, 1939.

‡ Glass, D. V., *Population Policies and Movements*, 1940.

* *Nord. Med.*, March 8th, 1941, p. 725.

considered themselves to be too much exhausted to have more children, and 40 per cent wished to space their children ; 20 per cent feared the inheritance of some abnormality by the child, or were influenced by memories of an unhappy childhood. Dr. Gårdlund, in his experience of practice in Stockholm, found that requests for abortion increased year by year. Some years ago he received 170-190 requests of the kind yearly, but in 1937 the figure rose to 266, in 1939 to 278, and in 1940 to 410. Among these the cases in which he could legally undertake abortion amounted to seven or eight a year.

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From time immemorial the sex ratio at birth has been the subject of much speculation. The fact that male live births invariably exceed female births has given rise to innumerable theories and the divergence has, in the past, often been used to buttress superstition. Not only do we find a male excess, but the ratio varies in time and place. In the statistical history of England and Wales of the last hundred years there have in any year never been less than 1,032 male births to 1,000 female, and never more than 1,060. The normal annual ratio is now around 1,040-45 : 1,000. Within England and Wales there is considerable variation. Thus in 1932 and 1936 the range for twelve regions of the country varied from 1,036 to 1,066, or 2·9 per cent of the average. In 1933 the range was 1,038 to 1,103, or 6·2 per cent of the average. Since the smallest number of births in a region is of the order of 10,000 annually it is difficult to ascribe these variations to chance causes. Some regions, such as Wales, appear to have in most years a higher masculinity than others, whilst the South East has invariably had a lower masculinity than Wales. Inconsistency is revealed when the ratio is analysed according to urbanization. The ratio for county boroughs was highest in 1934, lowest in 1931, 1932, 1935 and 1936 ; for the urban districts, highest in 1931, 1933 and 1935, lowest in 1934 and 1937 ; for the rural districts, highest in 1932 and 1937, lowest in 1933.

This biological phenomenon is almost as perplexing now as it was when it intrigued Dr. William Farr a hundred years ago. In 1841 he drew attention to the sex ratio in his Report and remarked that, " The proportions of the sexes are perhaps regulated by some natural law in operation immediately preceding, or at some early stage of, intrauterine life ; probably several other causes also exert their influence, such as the social status and relative ages of the parents at marriage."* The fact that increased masculinity accompanied the last Great War, the ratio reaching its peak at 1,060 in 1919, evoked much interest and many suggestions including those professing to see in the trend the invisible, majestic and benevolent hand of Providence. Another, and more prosaic explanation was forthcoming when it was discovered that the curve of the sex ratio over the period 1876 to 1919 showed an extraordinary parallelism with the *Economist* Index of Wholesale Prices. This, of course, led to the suggestion that the physical condition of the population was implicated as prices have some bearing on the standard of living.

An increased masculinity was, in fact, a characteristic of the post-war years in both warring and neutral countries. One factor here may be the postponement of marriages and a subsequent rise in the proportion of first-born children, for Russell† finds the highest male : female ratio in these and a decline with increasing size of family. This, too, may clearly have a bearing on the observed decreasing masculinity as one passes down the social scale, while differences in abortion rates, believed to affect the male more than the female, may explain the higher index in rural communities, compared with urban. Many factors, it seems, may affect the ratio, and yet another has been added to the list by Philip S. Lawrence, of the department of biology of the School of Hygiene and Public Health, Johns Hopkins University.‡ Using the department's family history records he demonstrates an increasing proportion of male births with the length of life of the

* Fifth Annual Report of the Registrar-General.
† Russell, W. T., *J. Hyg. Camb.*, 1940, **36**, 381.
‡ *Human Biol.*, 1940, **12**, 403.

parents, and especially the mother. For instance, taking broad groups, when both parents died at under seventy years 46·7 per cent of the children and 50·4 per cent of the grandchildren were males; when both parents died at over seventy the corresponding percentages were 52·4 and 52·3. These differences argue strongly, Lawrence suggests, for the existence of an element of biological fitness in sex-ratio determination. The innate constitutional vitality of parents may first be a factor in determining the primary sex-ratio—i.e. at conception—and secondly, and perhaps more probably, may influence the frequency of reproductive wastage so that more males are brought to term. Unlike Russell, he finds, however, no association between the sex-ratio and size of family. Turning from family histories to the much used, or ill-used, *Drosophila melanogaster*, he finds a similar relationship between the sex-ratio of the offspring and the powers of survival of the parents. With constant environmental conditions it seems that those flies, and particularly the mothers, which possessed the greater innate biological fitness had a tendency to produce a higher proportion of male progeny. Matings in the milk-bottle thus confirm the observations of mankind.

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We have, on occasion, referred to the eugenic vista of a Brave New World opened up by the technique of artificial insemination. We have recently had news from the U.S.A. which indicates that this method of human reproduction is gaining ground. In the *Journal of the American Medical Association*,* F. I. Seymour and A. Koerner record their observation on nearly 10,000 pregnancies obtained through artificial insemination, two-thirds of which were effected by use of the husband's semen alone. The proportion of boys to girls resulting was roughly 8 to 5 when the husband's semen was used and 7 to 5 when a donor's was used. Of the pregnancies 97 per cent resulted in live and perfectly normal babies. The incidence of miscarriages and abortions was only one-fifth of that occurring normally in the population in areas where artificial insemination is not practised. The incidence of extra-uterine pregnancies was only one-sixth of that occurring normally. In all, 1,357 women had repeated pregnancies by artificial insemination. Successful pregnancies were reported with inseminations varying from one to seventy-two.

* Jnl. Amer. Med. Assn., 1941, 116, 2,747.

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We have recently received some news of Mr. David Glass. Since the Spring of 1941 he has been working as Chief Statistical Officer to the British Oil Purchasing Mission in Washington. He wants to return to England, but it is unlikely that he will be released from his present duties for at least six months or a year yet. He can be written to, c/o British Embassy, Washington, and would be glad to hear from his former colleagues and fellow eugenists in Britain.

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Readers will notice in this issue a change in the name of the Editor. This is, however, only a temporary phenomenon caused by the illness of Dr. Maurice Newfield. We hasten to assure Dr. Newfield's many friends and admirers that he is now on the road to recovery and that after a much needed rest he will resume the Editorship of the REVIEW.